

The Effects of Online Pharmacy on Consumer Behaviour

Mahad Javed

*Ph.D. Scholar, Department of Business Administration,
Greenwich University, Pakistan.*
gu8138@greenwich.edu.pk

Mohammad Shaiq

*Professor and Dean, Faculty of Management Sciences and Information Studies,
Greenwich University, Pakistan.*
drshaiq@greenwich.edu.pk

Abstract

Online Pharmacies are set to revolutionise and disrupt how medicines and healthcare services are distributed to end-users and consumers in the contemporary era. As the modern world advances towards increasing digitization, the mortar-and-brick retail pharmacy is set to become obsolete. However, this trend needs to be reassessed in light of the socioeconomic situation of developing countries like Pakistan. The factors that drive an online pharmacy's acceptance and usage need to be identified and realized for the average Pakistani consumer in the current context. In this regard, the following study outlines a primarily quantitative approach based on the surveying strategy. A total of 100 participants were surveyed using a randomised sampling method, and the data collected pertained to the responses against the Likert scale. The quantitative analyses performed involved univariate linear regression and analysis of variance (ANOVA) estimations. Results indicate that pricing, privacy and doorstep delivery have a significant and positive association with online pharmacy usage in the participants ($p = 0.000$; 95%).

Keywords: *Online Buying, Pricing Strategy, E-Pharmacy, Privacy, Doorstep Delivery*

Introduction

E-commerce has revolutionised the buying and selling aspect of trade in our society, ramped up with increasing digitization and connectivity of the modern world. The added convenience, accessibility and time offered by e-commerce platforms have rapidly overseen their adoption by many traditional markets and industries (Gupta, 2020). Pharmacies are no exception, and this sector has increasingly seen a gradual adaptation of its business systems and processes to the digital world. This adaptation is predominantly concerned with meeting high demand and optimizing pharmacy operations while catering to ever-changing customer preferences (Desai, 2016). The popularity of online pharmacies has significantly increased with the recent COVID-19 pandemic, where the lockdown mandates and temporary restrictions on travel indicated the need for digitized pharmacy operations. Online pharmacy operations have impacted consumer buying behaviour patterns, and the relationship has also been observed conversely (Yadav et al., 2020; Arekar et al., 2021). Notably, the consumer psyche and behaviour associated with the preference to buy medicines online have been driven by considerations of the medicinal authenticity, safety and security of the process, logistical issues and other aspects.

In Pakistan, online pharmacies are gradually gaining traction and popularity as companies attempt to build trust and rapport with consumers. The online pharmacy market size is anticipated to increase with a compound annual growth rate (CAGR) of 16.8% in 2020-2025 as consumers shift towards such platforms (Singh et al., 2020; Khan et al., 2021). However, most consumers have resisted the adoption of online pharmacies in the developing world owing to a lack of awareness, concerns for reliability and authenticity or inaccessibility (Dutta & Bhattacharjee, 2021). Convenience can be a significant driver for adaption for most consumers. However, the factors leading to its success in online pharmacies are distinct and unique within socioeconomic settings (Khan et al., 2021). Notably, many gaps exist regarding

the determinants of consumer buying behaviour for Pakistani online pharmacies. The sociocultural and socioeconomic influences prevalent in one country are considerably different from the other. This renders most studies conducted on the topic area localized to the target populations of the study. The following paper thus pertains to the study of the impact of online pharmacies on consumer buying behaviour in Pakistan.

Statement of Problem

The shift towards mortar-less and brick-less models of pharmacies (“online or e-pharmacies”) needs to be assessed in the context of its impact on consumer (buying) behaviour. More specifically, given the unique sociocultural and socioeconomic factors prevalent in Pakistan, the role of consumer behaviour determinants such as privacy, pricing and access to medicines (delivery, logistics) requires further study (Khan et al., 2021). The present positioning/presence of online pharmacies in Pakistan like Dawaai.pk, DVAGO, Tabiyat.pk and others further needs to be considered in hindsight, such that the consumer awareness aspect of the problem is further explored. Despite their relative lack of physicality (except for the hybrid business, DVAGO), online pharmacies have been known to impact consumer preference. This has predominantly owed to the industry’s associations with medicinal authenticity, statutory compliance, medical and consumer safety considerations, and operational efficiencies (Agarwal & Bhardwaj, 2020). Incentives in pricing and treatment options can also boost online pharmacy preference (Gupta, 2020). Yet, studies have often not accounted for the feasibility aspects of such features, and their significance to the Pakistani case needs to be analysed comprehensively.

Literature Review

Pharmacy is considered the practice as well as the science of discovery. It is also the practice of preparing, producing and reviewing the medications. Pharmacy aims to ensure

affordable medicines' effectiveness, safety, and use. Additionally, most traditional pharmacies have recently changed their workplace culture into online or digital pharmacies. The pharmacy company operates their orders over the Internet, such as sending the order of medicines or any medical items to the consumer via mail. According to Desai (2016), the main reason for liking online pharmacies is that they offer reasonable pricing compared to traditional stores. It also reduces the cost of products and transactions, and because of its convenience, customers prefer this method of buying medicines.

Furthermore, Sarkale et al. (2022) claimed that the usage of online pharmacies in some countries was still restricted because of the significant infrastructure of communication factors, such as expensive connections to the Internet. As Nguyen et al. (2019) mentioned, consumers buying medicines online over offline channels benefits them. However, Agarwal & Bhardwaj (2020) identified that some factors affect customers' online purchasing behaviour. The e-pharmacies should consider the factor of age while studying consumer purchasing behaviour.

It was anticipated that pharmaceutical firms in the healthcare market should focus on online marketing rather than investing in locations (Srivastava & Sadhana, 2017). The study by Pujari et al. (2016) found that consumer behaviour had a significant effect on the online medicine market. Typically, female consumers perceive the risk of a higher amount at the time of ordering medicine online because they are more concerned about privacy. Gupta (2020) stated that online behaviour of purchasing medicines via online websites and the application of pharmacies was found to be a great method for consumers. The people accepted this change and currently prefer online purchasing of medicines and other medical items.

Consumers got benefits through e-pharmacy because they can easily estimate the cost of medicines. It also facilitated them through the protected use of credit cards, online

transfers, and cash on delivery. The research of Fittler et al. (2022) cited that the e-pharmacy market was highly affected by COVID-19, which makes e-pharmacy more integral for the healthcare sector by shifting traditional services into digitalized ones.

For valuable marketing, creativity is important in every industry or field. Roy (2022) determined that to identify the pattern of consumer behaviour, marketer significantly spend their time figuring out this. The theory of reasoned action told that the act of consumer behaviour believes in creating specific results and outcomes. The decision-making rationale was the key element of consumers while making purchases. The concept of consumer behaviour leans on the importance of specificity compared to denseness. Qazzafi (2019) said that the Consumer Behaviour Theory (CBT) proposed that the purchasers must favour the choice of products according to their motives and decision mediators.

Dutta and Bhattacharjee (2021) state that cost-effectiveness and the trade-off are significantly associated with consumers purchasing products or services online, such as medicines or check-ups from online pharmacies. The convenience offered in purchasing medicines involves a critical cost assessment step in the consumer buying process, where they consider the final cost, including that of the medicine, the delivery and the anticipated delays in acquitting their desired product. Fittler et al. (2022) state that if pricing incentives be available such as coupons and vouchers for certain medicines that are not as readily available in traditional pharmacies, consumers are more likely to purchase online. Further, often online pharmacies have stocked up on imported specialized supplements and medicines, offering them at a relatively incentivized cost in contrast to traditional pharmacies.

For consumers in the developing as well as the developed world, rising inflation has led to lower residual incomes, which has thus led to many consumers adopting a hard-line behaviour on the cost-effectiveness of what they tend to purchase (Orizio & Gellati, 2012; Dineen-Griffin & Abubakar, 2021). Competitiveness in pricing and discount have long

attracted consumers from all socioeconomic classes, which weigh the convenience against the costs. Typically, the decision favours the buy, in most cases, which is the sole driver behind the increase in online pharmacy expansion (Hameed, 2021). Discounts remain, by far, the most successful pricing strategy for online pharmacies worldwide, including in Pakistan (Adnan, 2014; Khan et al., 2021). However, the feasibility of such pricing options in forms other than discounts is an area of further research.

Increasing digitization has increased consumer concerns for data privacy and security, aggravated by data breaches such as Cambridge Analytica (Chakraborty et al., 2016). Online pharmacies may require some form of personal information. Further, using medical history and financial information for transactions/payments adds to data security risks, leading to significant avoidance of online platforms for some concerned consumers (Gupta et al., 2023). Despite the convenience offered by online pharmacies, consumer buying can be challenged by privacy and secrecy considerations. Fittler et al. (2022) state that consumers, data literacy and awareness are pivotal to identifying and avoiding fraudulent elements when shopping online.

Yadav et al. (2020) and Sharma (2020) note that consumers can consider privacy crucial in favour of cost-effectiveness and convenience. This trend in consumer behaviour can vary across different socioeconomic and sociocultural settings. In this regard, the online pharmacy's brand reputation can significantly increase consumer trust in the company. According to Khan et al. (2021), this implies that relatively mature brands like DVAGO are more likely to be trusted by online consumers in Pakistan, in contrast to the new entrants such as Tabiyat.pk. To this end, online pharmacies have keenly interested in increasing brand awareness with fraud and phoney medicine sellers that disguise themselves online (Sampat & Sabat, 2021). The lack of regulation in online pharmacy operations also adds to greater uncertainty and risks associated with data mishandling and privacy breaches.

Torkington (2021) notes that the COVID-19 pandemic has dramatically changed consumer perceptions regarding online e-commerce platforms and digital channels of buying/selling. Online pharmacies have significantly benefited from this opportunity. However, the underlying issues with the logistics and delivery associated with their operations have often led to higher counts of customer dissatisfaction and disengagement. Lostokova et al. (2012) state that doorstep delivery is a promising feature which provides medicine delivery at the doorstep. Doorstep delivery is desired as it allows consumers to save their travel costs and residual incomes for a low price (Baid & Ghosh, 2021). The success of doorstep delivery is largely dependent on the capabilities of the logistics and supply chain operations of online pharmacies, which can be challenged in hyperinflationary and uncertain markets such as Pakistan.

Generally, the factors observed to limit online buying of medicines relative to doorstep delivery are similar to those noted for other products. Notably, the authenticity factor and the process/delivery time can be more significant in the case of the former (Dutta & Bhattacharjee, 2021; Patak et al., 2014). Delivery of counterfeit/phoney medicines significantly damages consumer trust and online pharmacy reputation, which can negatively impact collective consumer behaviour. Substandard delivery and shortage of medicines also lead to such a negative impact (Ndem et al., 2019). Online pharmacies have thus relied on an agile and dynamic customer engagement process where online buyers are consistently informed of their product delivery status.

Sah et al. (2018) note that consumer behaviour toward online pharmacies has largely been driven by ease of access and convenience. Consumers have generally been able to adapt to the user-friendly buying processes on online platforms. Online pharmacy operations are more capable of offering a variety of specialized medicines, over-the-counter (OTC) drugs, and branded medications than their traditional counterparts (Khan et al., 2021). The logistical

aspect of online pharmacies has been significantly challenged by issues relating to the rising cost of imported medicines and local shortage of medicines, which has led to an inability to cope with demand (Guthrie et al., 2021). Online pharmacy resilience has thus largely pertained to its success in advertising the convenience and the opportunity for better cost savings, incentives for buys and additional prospects of access to medicines not traditionally available in the market.

Schaftlein and Hanna (2021) state that pharmacies have increased their online presence as the consumer market shifts toward digital channels. The whitepaper's authors found that online pharmacies have become integral to local healthcare infrastructure since the COVID-19 pandemic. Online conveniences with rapid and (usually free) shipping require further supplementation with a higher service and product quality (van Antwerp & Meyers, 2021). Moreover, consumers in the contemporary era are more likely to engage with online pharmacies that are more agile and up-to-speed with their preferences. Consumers prefer engagement regarding the 'when' and 'where' to receive their desired service or product from e-pharmacies. The above instance pertains to the customer-driven impact on online pharmacy operations.

Contactless delivery systems (sent directly to patients), a 24/7 virtual healthcare support model, and real-time pricing information are all key aspects that increase the competitiveness of online pharmacies over traditional retail pharmacies (van Antwerp & Meyers, 2021; Deloitte, 2021). There has been a persistent decline in the popularity of retail pharmacies in the developed and developing world. This decline owes to increasing digitization and the introduction of technological advancements in pharmacy operations. Companies actively seek to reduce operational costs and increase sales, to which the e-commerce platform has proven significantly successful. As van Antwerp and Meyers (2020) note, the dynamic pace of innovation cycles is set to dominate the retail pharmacy over the

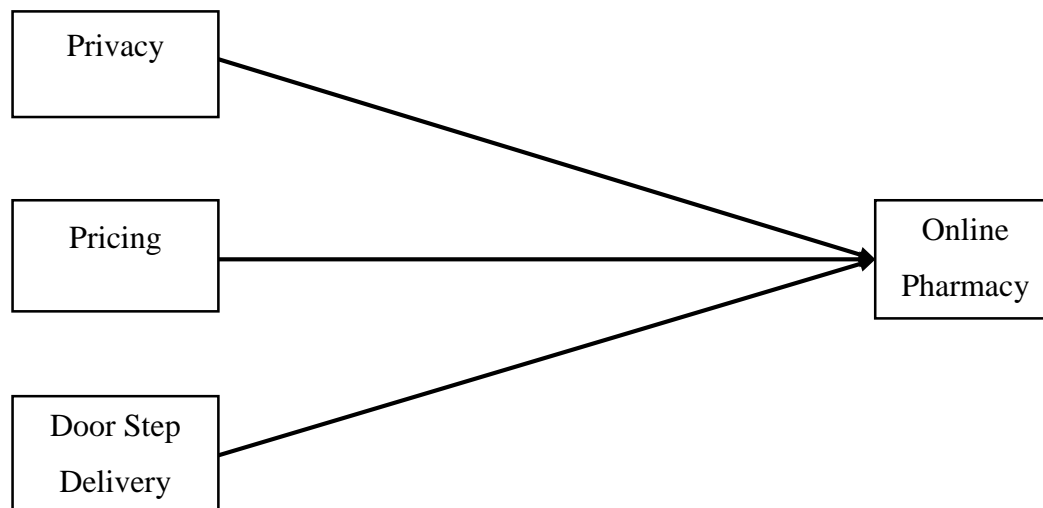
coming years as consumers shift to online shopping and buying owing to the benefits described above.

Conceptual Framework

Based on the literature review, the conceptual framework of the present study is as follows. The conceptual framework for the study considers the impact of privacy, pricing and doorstep delivery on the online pharmacy's impact on consumer behaviour for Pakistani consumers.

Figure 1

Conceptual Framework



Hypotheses

The research hypotheses for the present research are as under:

H1: Privacy (of patient information) has a significant positive relationship with online pharmacies.

H2: Pricing has a significant positive relationship with online pharmacies.

H3: Doorstep delivery has a significant positive relationship with online pharmacies.

H1: Privacy (of patient information) has a significant positive relationship with online pharmacies.

Studies indicate that individual privacy is a significant factor for consumers when purchasing medicines or accessing online healthcare services (Limbu et al., 2012). Privacy and security concerns can arise during de-regularisation or lack of appropriate monitoring protocols that render the online experience vulnerable to cybercrime and financial fraud (Fittler et al., 2022). Consumers generally indicate positive responses and higher engagement for websites with a more customer-friendly appeal and indicate certifications and security measures on-site or on the app. Personal credentials, medical history and financial information can be subject to breaches and leaks, leading to disengagement from the consumer end. However, as online pharmacies recognize such threats, significant efforts have been made to improve consumer safety and privacy, bringing about positive changes.

H2: Pricing has a significant positive relationship with online pharmacy

Relevant to the literature review, pricing is another significant factor that impacts consumer behaviour regarding the use of online pharmacies. Gemmill et al. (2008) state that online pharmacies typically adopt a competitive pricing and incentive strategy to elicit customer engagement. Free shipping (in most cases) coupled with cashless payment can further positively impact the pricing options' effectiveness. In the present case, in hyperinflationary economies such as Pakistan, consumer concerns for residual incomes associated with most buys are a key opportunity area for online pharmacies.

H3: Doorstep delivery has a significant positive relationship with online pharmacy

Hole et al. (2021) state that delivery and contactless service significantly add to the convenience offered by online pharmacies. Doorstep delivery has been significantly associated with online pharmacies. However, regarding the present case, the economic situation of Pakistan leads to significant challenges for online pharmacies to maintain

appropriate logistics and supply chain operations. This tends to impact delivery negatively and, thus, customer satisfaction. The present work will thus analyze whether the above hypothesis' association is true (Khan et al., 2021).

Research Methodology

The research design for the present work is based on a primary quantitative design, utilizing a Likert-based questionnaire. This study's philosophical paradigm and approach thus pertain to positivism and deductive reasoning. The selected philosophical paradigm, as Goddard and Melville (2004) describe, allows for an empirical and data-driven approach to realizing the study's constructed framework. The surveying strategy will involve 100 participants that will be sampled using a randomized sampling approach. The sample size is adequate for the desired experimental variance and the collected data's minimal transience (inconsistencies). The Likert scale also provides for a more appropriate response collection which can improve data harmonization and lower discrepancies (outliers) (Kim, 2011).

Participants were selected randomly to ensure data homogeneity and controlled/measurable transience using this approach. The primary data collected in the study has been analyzed using Mac Inne's (2022) recommendation for primary quantitative analysis. The recommendation involves using the Statistical Package for Social Science (SPSS) software for the descriptive, inferential and univariate probability estimations. SPSS allows for convenient, reliable and rapid analysis of large datasets, which can be summarised and presented adequately. Additionally, regression analysis has been used to quantify the predictability of the association between the relationships of the construct variables.

Results and Discussion

The regression analysis between the online buying behaviour determinants has been estimated using SPSS (see Table 1). Results indicate a favourable regression between the

variables indicating that these determinants significantly impact Pakistani consumers' online buying behaviour in e-pharmacies. The results are like what has been previously indicated by Atif et al. (2020).

Table 1
 Regression – Model Summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.844 ^a	.712	.688	1.10591

a. Dependent Variable: Online Pharmacy
b. Predictors: (Constant), Privacy, Pricing, Doorstep delivery

As evident from the model summary, the higher regression of the constructed framework indicates that real-time observations can be relatively fairly predicted. Thus, the following hypothetical validation using the analysis of variance can be adequately assessed with confidence. The regression analysis has a relatively lower standard error of the estimate, indicating that the dataset's inconsistency (scatter) is relatively low. Thus, the error margins are insignificant and further analysis for the hypothetical testing will follow reliable estimates.

ANOVA and Coefficient Analysis

Analysis of Variance (ANOVA) of the collected data set has yielded the following results.

Table 2.

ANOVA.

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	220.706	6	36.784	30.076	.000 ^b
	Residual	89.281	73	1.223		
	Total	309.987	79			

a. Dependent Variable: Online Pharmacy
b. Predictors: (Constant), Privacy, Pricing, Doorstep delivery

Results indicate a low significance ($p < 0.05$) for the overall dataset, indicating that the differences between variables are statistically insignificant and valid for hypothetical testing and validation. The results thus indicate that all the study hypotheses have been accepted. The results implicate that consumer behaviour is significantly impacted by the pricing, privacy and doorstep delivery elements of online pharmacies. The findings are similar to what has been ascribed in literature for Pakistani consumers and the online pharmacy market (Khan et al., 2021; Adnan et al., 2014). Despite hyperinflationary and economic uncertainty concerns, the results indicate a positive association for all study variables.

Conclusion and Recommendation

In brief summary, the overall positive association observed indicates a positive outlook for the online pharmacy sector in Pakistan. Further, the impact of this industry on Pakistani consumer behaviour has also been demonstrated. Inferential statistics reveal a highly statistically significant association between online pharmacies and pricing, privacy and doorstep delivery ($p = 0.000$; at 95% confidence). Further, regression analysis also quantifies relatively strong predictability of the impact of the construct variables ($R^2 = 0.717$). The primary quantitative design based on the survey strategy has provided significant findings in relation to the topic area.

Literature suggests that online pharmacies have significantly impacted consumer engagement, usage and dependence due to the convenience offered (Atif et al., 2020; Khan et al., 2021; Adnan et al., 2014). Results of the present study further assert this finding for the Pakistani online pharmacy market in the contemporary socioeconomic situation. Orizio and Gellati (2012) observed that consumers of online pharmacies are actively seeking to save their residual incomes. Thus, this indicates a higher preference for contactless, rapid and easy access to vital healthcare products and services provided straight to the patient without

physical visitation. Convenience has been indirectly observed to be a driving factor for Pakistani consumers studied in the present work especially considering the relative issues that may persist in doorstep delivery and pricing options (limitations thereof). Further, the current subsidization of pharmaceuticals and natural health supplements offered in online pharmacies has elicited higher consumer buys and preferences for the platform.

Privacy has been found to also assert a positive impact, despite earlier findings by Gupta et al. (2023) and Fittler et al. (2022). This indicates that online pharmacies in Pakistan have significantly improved their data security and consumer safety measures which would have resulted in higher customer satisfaction. However, it is important to note that the survey also found participants who expressed concerns about the long-term security offered by the online pharmacy apps and websites. This thus gives precedence that online pharmacies must continue to develop customer rapport and trust with every innovation cycle it passes over the years. Operational efficiencies of online pharmacies have also significantly improved delivery systems and order processing times for larger online pharmacies. As van Antwerp and Meyers (2021) indicated, online pharmacies will continue to increase their capabilities. Contactless, free/low-fee delivery, rapid and personalized access to medicines, and virtual healthcare services can significantly impact customer buying decisions. Similar trends have been observed in the present study.

Implication

- Implementing online-based pharmacies is highly cost-effective and saves time.
- Additionally, online pharmacies help accessibility of medicines that are not readily and easily available at a conventional pharmacy, and patients get easy access to diverse medicines at home.
- Offer low cost when compared with the traditional-based pharmacies as there is no interventional seller with the cost.

- Another implication of online pharmacy is a chance to talk with various healthcare professionals at home, which is highly beneficial for elderly individuals who face difficulty meeting them.
- Online pharmacies provide special discount offers, and the individual who requires purchasing the medication frequently is highly beneficial.

Recommendation

- To ensure standard safety measures while purchasing medicines, online pharmacies must provide guidelines that refer to most of the important values that need to be followed by patients while making purchases.
- Provide patients with a common logo that helps them to identify authorized online pharmacies that sell reliable and authentic medication.
- Online pharmacies must incorporate strategic planning by implementing various factors and focusing on healthcare professionals who directly interact with customers.
- With directly interacting with pharmacies, the public needs to be provided relevant information. This can be achieved by driving campaigns to create awareness about purchasing medicine through online platforms from various sources that customers are unaware of.
- Maintain privacy level while operating in the online pharmacy sector.

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